REMARKS/ARGUMENTS:

Claims 5 and 10 are canceled without prejudice. Claims 1, 3, 4, 6, and 11 are amended. The support for the amendments can be found on pages 5-6 of the specification. Claims 1-4, 6-9, and 11 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §102/§103:

Claims 1, 3-5, and 7 stand rejected under 35 U.S.C. §102(b) as being anticipated by Olsen (U.S. Patent No. 4,392,655) or in the alternative, under 35 U.S.C. 103 (a) as obvious over Sakata et al. (U.S. Patent No. 6,206,378). This rejection is moot with respect to claim 5 due to the cancellation of this claim. The Applicant respectfully traverses this rejection as to claims 1, 3, 4, and 7.

In her remarks to the Applicant's response filed on September 22, 2003, the Examiner states, "it is noted that the features upon which applicant relies (i.e., that the seal of Olsen does not prevent seeping between an outer surface of the sealing member and an inner surface of the stationary member) are not recited in the rejected claim(s)." In response, the Applicant amended claims 1 and 7 to clarify that entry of a liquid into the first gap is blocked by a static seal disposed between the stationery member and the sealing member. The support for this amendment can be found on page 6, lines 1-9, of the specification.

Applicant respectfully submits that Olsen and Sakata, either alone or in a combination, do not anticipate or render obvious independent claims 1 and 7. Olsen and Sakata fail to teach or suggest a clearance seal assembly, comprising a sealing member having an inner wall and an outer wall, the sealing member circumferentially disposed between the stationary member (or a housing structure) and the moving member, wherein the inner wall of the stationary member and the outer wall of the sealing member define a first gap and an entry of a liquid into the first gap is blocked by a static seal disposed between the stationery member and the sealing member.

Olsen does not anticipate claims 1 and 7, because he does not teach a static seal, which blocks an entry of a liquid into the gap formed between the inner wall of the stationary member and the outer wall of the sealing member. To the contrary, Olsen requires filling a gap 23 between the housing 2 and the seal body 19 with fluid to compress the seal body radially inward toward the shaft 4 (column 3, lines 62-66, column 4, lines 3-16). A static seal 17/27 mentioned by the Examiner is formed when the bottom of seal 19 is compressed against horizontal sealing surface 16 of the housing. Accordingly, as shown in Figures 1 and 4, the seal 17/27 does not prevent a fluid from entering between an outer surface of the sealing member and an inner surface of the stationary member as required by the present invention.

Olsen does not make instant claims 1 and 7 obvious because it teaches away from the present invention. Unlike the present invention, in which the size of the second gap is defined only by the dimensions of the rigid sealing and moving members and the gap remains constant regardless of the pressure applied, the gap of Olsen changes under the pressure. In fact, Olsen relies on a deformation of the seal body under high-pressure to reduce the gap between the shaft and the seal to minimize (but not to eliminate) leakage therebetween (column 3, lines 45-55). The deformation is achieved by filling the gap 18 between the housing and the seal body with the fluid, which radially compresses the seal (column 2, lines 58-65). Thus, Olsen teaches away from preventing the fluid from entering a gap between the inner surface of the housing and the outer surface of the seal. Therefore, claims 1 and 7 are neither anticipated nor rendered obvious by Olsen. Claims 3 and 4 depend from claim 1 and are also patentable over Olsen for at least the same reasons as claim 1.

Sakata alone does not anticipate or make the present invention obvious. Sakata has no teaching whatsoever of clearance seal assemblies between moving parts, which are suitable for the use with liquids, much less of a clearance seal assembly of the present invention as recited in claims 1 and 7. Instead, Sakata describes a sealing device in a gas turbine between a spindle bolt and a turbine disc, which do not move relative to each other.

It appears that although the Examiner rejected claims 1, 3-5, and 7 under §103 over Sakata alone, the Examiner's intention was to use Sakata in a combination with Olsen. For example, the Examiner states, "Sakata has also been provided for its teaching of a gap that prevents leakage" (page 3 of the Office Action). The Examiner also notes, "...Sakata teaches a clearance made to prevent leakage. It is this teaching that is being applied to Olsen."

Applicants submit that a combination of Olsen and Sakata also does not make the present invention obvious. As discussed above, Olsen does not teach or suggest a static seal, which blocks an entry of a liquid into the gap formed between the inner wall of the stationary member and the outer wall of the sealing member. Sakata does not overcome this defect of Olsen and, as evident from the Examiner's statements, is not relied by the Examiner for such. The Examiner recites Sakata for teaching a clearance made to prevent leakage.

Nothing in Sakata teaches a static seal, which blocks an entry of a liquid into the gap formed between the inner wall of the stationary member and the outer wall of the sealing member. To the contrary, Sakata teaches a fluid leakage L_1 along the sheet surface 7 between the outer surface of a cylindrical seal cover 5 fitted over the seal 3 and an inner surface of the turbine disk 8 (abstract; column 3, lines 13-37). Embodiments shown in Figures 1, 3, and 4 also indicate the presence of the leakage L_1 between the outer surface of a seal and an inner surface of the turbine disk. Although Figure 5 of Sakata does not show any gaps between an outer surface of an additional seal 23 and an inner surface of the turbine, the description of Figure 5 in the specification clearly indicates a presence of such gap. For example, in discussing the embodiment of Figure 5, Sakata states that a "clearance between the seal piece 23 expanded by heat in operation and the disk 8 becomes <u>smaller</u>" (column 5, lines 5-9), and , thus, the clearance is not completely eliminated. Accordingly, a steam stream can still enter the clearance and L_1 leakage can still occur between the outer surface of the seal and the inner surface of the turbine disc, which is contrary to the requirements of the instant claims 1 and 7.

Nothing in Sakata suggests a static seal, which blocks an entry of a liquid into the gap formed between the inner wall of the stationary member and the outer wall of the sealing member. Sakata, relies on differences in coefficients of linear expansions of materials used to manufacture a gas turbine and a seal (abstract). Unlike the dynamic clearance seal of the present invention, which relies solely on the size and a uniformity of the gap between a moving part and a seal in order to prevent leakage of a fluid, the seal of Sakata allows radial deformation and/or displacement of the sealing member under operating conditions. Accordingly, there is no need in Sakata to completely block an entry of steam between an outer surface of the sealing member and an inner surface of the stationary member. Thus, based on the teachings of Sakata, it would not have been obvious to those skilled in the art to place a static seal between the stationery member and the sealing member in order to completely block an entry of a liquid into a gap between an inner wall of the stationary member and the outer wall of the sealing member.

Therefore, claims 1 and 7 are neither anticipated nor rendered obvious by Olsen, Sakata, or Olsen in view of Sakata. Claims 3-5 depend from claim 1 and are also patentable over Olsen for at least the same reasons as claim 1.

Claim 4 has been rewritten an independent form. The independent claim 4 requires a sealing member having an inner wall and an outer wall, the sealing member circumferentially disposed between the stationary member and the moving member, wherein the sealing member is integrally formed on the inner wall of the stationary member. Applicant respectfully submits that Olsen and Sakata do not anticipate or render obvious claim 4, because Olsen and Sakata fail to teach or suggest a sealing member that is integrally formed on the inner wall of the stationary member.

The Examiner states that in Olsen, "The sealing member is considered integrally formed with the stationary member in that it is secured within the stationary member" (page 2 of the Office Action). The Applicant respectfully disagrees.

Being "secured within" is not the same as or equivalent to "integrally formed". In the present invention, the sealing member is integrally formed with the housing structure. For the purposes of this invention, the phrase "integrally formed" means "molded together with the housing" (page 6, lines 4-8). As shown in Figure 3, in this embodiment, there is no any gaps or spaces between the seal and housing and the sealing member is permanently fixed to the inner wall of the stationary member.

In Olsen, the seal is not attached to the housing. To the contrary, a s explained above, a gap between the housing and the seal body is required because a seal is formed only when a fluid enters the gap and radially compresses the seal. Sakata cannot remedy the defect of Olsen. In Sakata, "a seal piece 3, split into two sections, as shown in FIG. 2 is fitted around the spindle bolt 1 in the seal hole 4" (Sakata, column 3, lines 17-19). Thus, in Sakata, the seal piece is merely inserted without being permanently affixed to anything.

In light of the foregoing, Applicant respectfully submits that Olsen and Sakata do not anticipate or render obvious claim 4. Olsen and Sakata either alone or in a combination fail to teach or suggest a sealing member is integrally formed on the inner wall of the stationary member. Withdrawal of this rejection is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103:

Claims 2 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Olsen (in view of Sakata) as applied to claims 1 and 7, and further in view of Holland (U.S. Patent No. 4,501,120). Applicant respectfully traverses this rejection.

Claims 2 and 8 depend from claims 1 and 7, respectively, and as such include all the limitations of claims 1 and 7, and therefore cannot be rendered obvious over Olsen and Sakata, for the reasons discussed above. Holland cannot remedy the defect of Olsen and Sakata, and is not relied upon by the Examiner for such. Instead, the Examiner cites Holland for teaching the making of a clearance seal and piston of ceramic material.

Accordingly, Applicant respectfully submits that the cited references could not have made claims 2 and 8 obvious, because the combination of references fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claims 1, 3-7, and 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kostohris et al. (U.S. Patent No. 5,493,954) in view of Olsen in view of Sakata. This rejection is moot with respect to claims 5 and 10 due to the cancellation of these claims. The Applicant respectfully traverses this rejection as to claims 1, 3, 4, 6, 7, 9, and 11.

As discussed above, claims 1, 4, and 7 are patentable over Olsen in view of Sakata. Claims 3 and 6, and 9 and 11 depend from claims 1 and 7, respectively, and as such include all the limitations of claims 1 and 7, and therefore, cannot be rendered obvious over Olsen and Sakata, for the reasons discussed above. Kostohris cannot remedy the defect of Olsen and Sakata and is not relied upon by the Examiner for such. The Examiner cites Kostohris for teaching a pump comprising a housing defining a chamber, a piston 14, and a sealing member 34. Kostohris has no teaching whatsoever of a continuous and uniform gap between the sealing member and the moving member that prevents the fluid from flowing through the gap, wherein the entry of a liquid into the first gap is blocked by a static seal disposed between the stationery member (or housing structure) and the sealing member. Accordingly, Applicant respectfully submits that the cited references could not have made claims 1, 3, 4, 6, 7, 9, and 11 obvious, because the combination of references fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the **applicants request a telephone interview with the Examiner** to discuss the steps necessary for placing the application in condition for allowance. The undersigned attorney can be reached at the Los Angeles, California telephone number (213) 337-6851

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Dated: April 30, 2004

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